

Fig. 3A

Mouse alpha1-antitrypsin mRNA and polypeptide sequence

Met	Thr	Pro	Ser	Ile	Ser	Trp	Gly	Leu	Leu	Leu	Leu	Ala	Gly	Leu	Cys	Cys	Leu	Val	Pro
ATG	ACT	CCC	TCC	ATC	TCA	TGG	GGT	CTA	CTG	CTT	CTG	GCA	GGC	CTG	TGT	TGC	CTG	GTC	CCC
TAC	TGA	GGG	AGG	TAG	AGT	ACC	CCA	GAT	GAC	GAA	GAC	CGT	CCG	GAC	ACA	ACG	GAC	CAG	GGG
Ser	Phe	Leu	Ala	Glu	Asp	Val	Gln	Glu	Thr	Asp	Thr	Ser	Gln	Lys	Asp	Gln	Ser	Pro	Ala
AGC	TTT	CTG	GCT	GAG	GAT	GTT	CAG	GAG	ACA	GAC	ACC	TCC	CAG	AAG	GAT	CAG	TCC	CCA	GCC
TCG	AAA	GAC	CGA	CTC	CTA	CAA	GTC	CTC	TGT	CTG	TGG	AGG	GTC	TTC	CTA	GTC	AGG	GGT	CGG
Ser	His	Glu	Ile	Ala	Thr	Asn	Leu	Gly	Asp	Phe	Ala	Ile	Ser	Leu	Tyr	Arg	Glu	Leu	Val
TCC	CAT	GAG	ATC	GCT	ACA	AAC	CTG	GGA	GAC	TTT	GCA	ATC	AGC	CTA	TAC	CGG	GAG	CTG	GTC
AGG	GTA	CTC	TAG	CGA	TGT	TTG	GAC	CCT	CTG	AAA	CGT	TAG	TCG	GAT	ATG	GCC	CTC	GAC	CAG
His	Gln	Ser	Asn	Thr	Ser	Asn	Ile	Phe	Phe	Ser	Pro	Val	Ser	Ile	Ala	Thr	Ala	Phe	Ala
CAT	CAG	TCC	AAC	ACT	TCC	AAC	ATC	TTC	TTC	TCC	CCA	GTG	AGC	ATT	GCC	ACA	GCC	TTT	GCT
GTA	GTC	AGG	TTG	TGA	AGG	TTG	TAG	AAG	AAG	AGG	GGT	CAC	TCG	TAA	CGG	TGT	CGG	AAA	CGA
Met	Leu	Ser	Leu	Gly	Ser	Lys	Gly	Asp	Thr	His	Thr	Gln	Ile	Leu	Glu	Gly	Leu	Gln	Phe
ATG	CTC	TCC	CTA	GGG	AGC	AAG	GGT	GAC	ACT	CAC	ACG	CAG	ATC	CTA	GAG	GGC	CTG	CAG	TTC
TAC	GAG	AGG	GAT	CCC	TCG	TTC	CCA	CTG	TGA	GTG	TGC	GTC	TAG	GAT	CTC	CCG	GAC	GTC	AAG
Asn	Leu	Thr	Gln	Thr	Ser	Glu	Ala	Asp	Ile	His	Lys	Ser	Phe	Gln	His	Leu	Leu	Gln	Thr
AAC	CTC	ACA	CAA	ACA	TCG	GAG	GCT	GAC	ATC	CAC	AAG	TCC	TTC	CAA	CAC	CTC	CTC	CAA	ACC
TTG	GAG	TGT	GTT	TGT	AGC	CTC	CGA	CTG	TAG	GTG	TTC	AGG	AAG	GTT	GTG	GAG	GAG	GTT	TGG
Leu	Asn	Arg	Pro	Asp	Ser	Glu	Leu	Gln	Leu	Ser	Thr	Gly	Asn	Gly	Leu	Phe	Val	Asn	Asn
CTC	AAC	AGA	CCA	GAC	AGT	GAG	CTG	CAG	TTG	AGC	ACA	GGC	AAT	GGC	CTC	TTT	GTC	AAC	AAT
GAG	TTG	TCT	GGT	CTG	TCA	CTC	GAC	GTC	AAC	TCG	TGT	CCG	TTA	CCG	GAG	AAA	CAG	TTG	TTA
Asp	Leu	Lys	Leu	Val	Glu	Lys	Phe	Leu	Glu	Glu	Ala	Lys	Asn	His	Tyr	Gln	Ala	Glu	Val
GAC	CTG	AAG	CTG	GTG	GAG	AAG	TTT	CTG	GAA	GAG	GCC	AAG	AAC	CAT	TAT	CAG	GCA	GAA	GTC
CTG	GAC	TTC	GAC	CAC	CTC	TTC	AAA	GAC	CTT	CTC	CGG	TTC	TTG	GTA	ATA	GTC	CGT	CTT	CAG
Phe	Ser	Val	Asn	Phe	Ala	Glu	Ser	Glu	Glu	Ala	Lys	Lys	Val	Ile	Asn	Asp	Phe	Val	Glu
TTC	TCT	GTC	AAC	TTT	GCA	GAG	TCA	GAG	GAG	GCC	AAG	AAA	GTG	ATT	AAT	GAT	TTT	GTG	GAG
AAG	AGA	CAG	TTG	AAA	CGT	CTC	AGT	CTC	CTC	CGG	TTC	TTT	CAC	TAA	TTA	CTA	AAA	CAC	CTC
Lys	Gly	Thr	Gln	Gly	Lys	Ile	Val	Glu	Ala	Val	Lys	Glu	Leu	Asp	Gln	Asp	Thr	Val	Phe
AAG	GGA	ACC	CAA	GGA	AAG	ATA	GTT	GAG	GCA	GTG	AAA	GAA	CTG	GAC	CAA	GAC	ACA	GTT	TTC
TTC	CCT	TGG	GTT	CCT	TTC	TAT	CAA	CTC	CGT	CAC	TTT	CTT	GAC	CTG	GTT	CTG	TGT	CAA	AAG
Ala	Leu	Gly	Asn	Tyr	Ile	Leu	Phe	Lys	Gly	Lys	Trp	Lys	Lys	Pro	Phe	Asp	Pro	Glu	Asn
GCC	CTG	GGC	AAT	TAC	ATT	CTT	TTT	AAA	GGC	AAA	TGG	AAG	AAG	CCA	TTC	GAT	CCT	GAG	AAC
CGG	GAC	CCG	TTA	ATG	TAA	GAA	AAA	TTT	CCG	TTT	ACC	TTC	TTC	GGT	AAG	CTA	GGA	CTC	TTG
Thr	Glu	Glu	Ala	Glu	Phe	His	Val	Asp	Lys	Ser	Thr	Thr	Val	Lys	Val	Pro	Met	Met	Thr
ACT	GAA	GAA	GCT	GAG	TTC	CAC	GTG	GAC	AAG	TCC	ACC	ACG	GTG	AAG	GTG	CCC	ATG	ATG	ACC
TGA	CTT	CTT	CGA	CTC	AAG	GTG	CAC	CTG	TTC	AGG	TGG	TGC	CAC	TTC	CAC	GGG	TAC	TAC	TGG
Leu	Ser	Gly	Met	Leu	Asp	Val	His	His	Cys	Ser	Thr	Leu	Ser	Ser	Trp	Val	Leu	Leu	Met
CTC	TCG	GGC	ATG	CTT	GAT	GTG	CAC	CAT	TGC	AGC	ACA	CTC	TCC	AGC	TGG	GTG	CTG	CTG	ATG
GAG	AGC	CCG	TAC	GAA	CTA	CAC	GTG	GTA	ACG	TCG	TGT	GAG	AGG	TCG	ACC	CAC	GAC	GAC	TAC
Asp	Tyr	Ala	Gly	Asn	Ala	Ser	Ala	Val	Phe	Leu	Leu	Pro	Glu	Asp	Gly	Lys	Met	Gln	His
GAT	TAC	GCG	GGC	AAC	GCC	AGT	GCT	GTC	TTC	CTC	CTG	CCC	GAA	GAT	GGG	AAG	ATG	CAG	CAT
CTA	ATG	CGC	CCG	TTG	CGG	TCA	CGA	CAG	AAG	GAG	GAC	GGG	CTT	CTA	CCC	TTC	TAC	GTC	GTA
Leu	Glu	Gln	Thr	Leu	Asn	Lys	Glu	Leu	Ile	Ser	Lys	Ile	Leu	Leu	Asn	Arg	Arg	Arg	Arg
CTG	GAG	CAA	ACT	CTC	AAC	AAG	GAG	CTC	ATC	TCT	AAG	ATC	CTG	CTA	AAC	AGG	CGC	AGA	AGG
GAC	CTC	GTT	TGA	GAG	TTG	TTC	CTC	GAG	TAG	AGA	TTC	TAG	GAC	GAT	TTG	TCC	GCG	TCT	TCC
Leu	Val	Gln	Ile	His	Ile	Pro	Arg	Leu	Ser	Ile	Ser	Gly	Glu	Tyr	Asn	Leu	Lys	Thr	Leu

TTA GTC CAG ATC CAT ATC CCC AGA CTG TCC ATC TCT GGA GAA TAT AAC TTG AAG ACA CTC
 AAT CAG GTC TAG GTA TAG GGG TCT GAC AGG TAG AGA CCT CTT ATA TTG AAC TTC TGT GAG

Met Ser Pro Leu Gly Ile Thr Arg Ile Phe Asn Asn Gly Ala Asp Leu Ser Gly Ile Thr
 ATG AGT CCA CTG GGC ATC ACC CGG ATC TTC AAC AAT GGG GCT GAC CTC TCC GGA ATC ACA
 TAC TCA GGT GAC CCG TAG TGG GCC TAG AAG TTG TTA CCC CGA CTG GAG AGG CCT TAG TGT

Glu Glu Asn Ala Pro Leu Lys Leu Ser Lys Ala Val His Lys Ala Val Leu Thr Ile Asp
 GAG GAG AAT GCT CCC CTG AAG CTC AGC AAG GCT GTG CAT AAG GCT GTG CTG ACC ATC GAT
 CTC CTC TTA CGA GGG GAC TTC GAG TCG TTC CGA CAC GTA TTC CGA CAC GAC TGG TAG CTA

Glu Thr Gly Thr Glu Ala Ala Ala Ala Thr Val Phe Glu Ala Val Pro Met Ser Met Pro
 GAG ACA GGA ACA GAA GCT GCA GCA GCT ACA GTC TTT GAA GCC GTT CCT ATG TCT ATG CCC
 CTC TGT CCT TGT CTT CGA CGT CGT CGA TGT CAG AAA CTT CGG CAA GGA TAC AGA TAC GGG

Pro Ile Leu Arg Phe Asp His Pro Phe Leu Phe Ile Ile Phe Glu Glu His Thr Gln Ser
 CCT ATC CTG CGC TTC GAC CAC CCT TTC CTT TTT ATA ATA TTT GAA GAA CAC ACT CAG AGC
 GGA TAG GAC GCG AAG CTG GTG GGA AAG GAA AAA TAT TAT AAA CTT CTT GTG TGA GTC TCG

Pro Ile Phe Val Gly Lys Val Val Asp Pro Thr His Lys ***
 CCC ATC TTT GTG GGA AAA GTG GTA GAT CCC ACA CAT AAA TGA
 GGG TAG AAA CAC CCT TTT CAC CAT CTA GGG TGT GTA TTT ACT

Figure 3B

Mouse EMAP mRNA and polypeptide sequence

Met	Pro	Thr	Glu	Thr	Glu	Arg	Cys	Ile	Glu	Ser	Leu	Ile	Ala	Val	Phe	Gln	Lys	Tyr	Ser
ATG	CCT	ACA	GAG	ACT	GAG	AGA	TGC	ATT	GAG	TCC	CTG	ATT	GCT	GTT	TTC	CAA	AAG	TAC	AGC
TAC	GGA	TGT	CTC	TGA	CTC	TCT	ACG	TAA	CTC	AGG	GAC	TAA	CGA	CAA	AAG	GTT	TTC	ATG	TCG
Gly	Lys	Asp	Gly	Asn	Asn	Thr	Gln	Leu	Ser	Lys	Thr	Glu	Phe	Leu	Ser	Phe	Met	Asn	Thr
GGG	AAG	GAT	GGA	AAC	AAC	ACT	CAA	CTC	TCC	AAA	ACT	GAA	TTC	CTT	TCC	TTC	ATG	AAC	ACA
CCC	TTC	CTA	CCT	TTG	TTG	TGA	GTT	GAG	AGG	TTT	TGA	CTT	AAG	GAA	AGG	AAG	TAC	TTG	TGT
Glu	Leu	Ala	Ala	Phe	Thr	Lys	Asn	Gln	Lys	Asp	Pro	Gly	Val	Leu	Asp	Arg	Met	Met	Lys
GAG	CTG	GCT	GCC	TTC	ACA	AAG	AAC	CAG	AAG	GAT	CCT	GGT	GTC	CTT	GAC	CGC	ATG	ATG	AAG
CTC	GAC	CGA	CGG	AAG	TGT	TTC	TTG	GTC	TTC	CTA	GGA	CCA	CAG	GAA	CTG	GCG	TAC	TAC	TTC
Lys	Leu	Asp	Leu	Asn	Cys	Asp	Gly	Gln	Leu	Asp	Phe	Gln	Glu	Phe	Leu	Asn	Leu	Ile	Gly
AAG	CTG	GAC	CTC	AAC	TGT	GAC	GGG	CAG	CTA	GAT	TTC	CAA	GAG	TTT	CTC	AAC	CTC	ATT	GGT
TTC	GAC	CTG	GAG	TTG	ACA	CTG	CCC	GTC	GAT	CTA	AAG	GTT	CTC	AAA	GAG	TTG	GAG	TAA	CCA
Gly	Leu	Ala	Ile	Ala	Cys	His	Asp	Ser	Phe	Ile	Gln	Thr	Ser	Gln	Lys	Arg	Ile	***	
GGC	TTA	GCT	ATA	GCG	TGC	CAT	GAT	TCT	TTC	ATC	CAA	ACT	TCC	CAG	AAG	CGA	ATC	TAA	
CCG	AAT	CGA	TAT	CGC	ACG	GTA	CTA	AGA	AAG	TAG	GTT	TGA	AGG	GTC	TTC	GCT	TAG	ATT	

Figure 3C

Alignment of homologous AAT mRNA and protein sequences from other species

		1		60
hamster AAT	(1)	-----	ATCAGCTCTGGGACAGGCAAGCTA	AAATGA
human AAT	(1)	-----	ACATGTAATC	GACAATGC
mouse AAT	(1)	-----	-----	ATGA
rabbit AAT	(1)	ATATCATCTCCCATCTTTGTCTCTGCCACCAGCCCTGGGCACTGAGTCTTG	GACAATGC	
rat AAT	(1)	-----	-----	
sheep AAT	(1)	-----	-----	CGATAATGG
Consensus	(1)			GA AATG
		61		120
hamster AAT	(32)	AGCCCTCCATCTCATGGGGATCTCTGCTGCTGGCAGGCCTGTGCTGCCTGGTCCCCAGCT		
human AAT	(19)	CGTCTTCTGTCTCGTGGGGCACTCTCTGCTGCTGGCAGGCCTGTGCTGCCTGGTCCCCAGCT		
mouse AAT	(5)	CTCCCTCCATCTCATGGGGTCTACTGCTTCTGCGAGGCCTGTGCTGCCTGGTCCCCAGCT		
rabbit AAT	(61)	CACCTCTGTCTCTCGGGCGCTCCTCTGCTGGCAGGCCTGGCTGCCTGCTGCCCGCT		
rat AAT	(1)	---GCTCCATCTCACGGGGCTCTGCTTCTGGCAGCCCTGTGCTGCCTGGCAGGCCT		
sheep AAT	(10)	CACCTCTCCATCACACGGGGCTTCTGCTGCTGGCAGCCCTGTGCTGCCTGGCAGGCCT		
Consensus	(61)	C CCCTCCATCTCATGGGGCTCTGCTGCTGGCAGGCCTGTGCTGCCTGGTCCCCAGCT		
		121		180
hamster AAT	(92)	TCCTGGCTGAGGAT-----	GGCAGGAGACAGAT	---GCCTGCAAGCAGG
human AAT	(76)	CCCTGGCTGAGGATCCCCAGGAGATGCT	GGCAGAGACAGAT	---ACATCCCAACATG
mouse AAT	(65)	TTCTGGCTGAGGAT-----	GTTGAGGAGACAGAC	---ACCTCCAGCAGG
rabbit AAT	(121)	TCCTGGGCGACGAG-----	GGCAGGAGACAGCC	---GTTTCCAGCCATG
rat AAT	(58)	TCCTGGCTGAGGAT-----	GGCAGGAAACCGAT	---ACCTCCAGCAGG
sheep AAT	(70)	CCCTGGCTGGGTTCTCCAAGGACACGCT	GTCCAAGAGACAGATGAT	ACAGGCCACAGG
Consensus	(121)	TCCTGGCTGAGGAT	GGCAGGAGACAGAT	ACCTCCAGCAGG
		181		240
hamster AAT	(134)	ATCAGGAGCAACCAAGCCTGCTCTAAGATCGCTCCAAATTTGGCAGACTTTTCCTTCAACC		
human AAT	(133)	ATCAGGATCACCCAACCTTCAACAAGATCACCCCAACCTGGCTGAGTTCCGCTTCAGCC		
mouse AAT	(107)	ATCAG--TG---CCAGCCTCCATGAGATCGCTACAAACCTGGGAGACTTTGCAATCAGCC		
rabbit AAT	(163)	AGCAGGACCGCCAGCCTGCCACAGGATGCGCCGAGCGTGGTTGAGTTCCGCTTCAGCC		
rat AAT	(100)	ACCAG-AGT-CCAA-CCTACCGTAAGATTTCTTCAAACCTGGCAGACTTTGCCCTTCAGCC		
sheep AAT	(130)	A--AG-----CAGCCTGCCACAAGATTGCCCCCAACCTGGGCAACTTTGCCCTTCAGCA		
Consensus	(181)	ATCAGGA C CCCAGCCTGCCATAAGATCGTCCAAACCTGGCAGACTTTGCCTTCAGCC		
		241		300
hamster AAT	(194)	TATACCGGGAGCTGGTCCATCAGTCCAATACGACCAACATCTTCTTCTCTCTGTGAGCA		
human AAT	(193)	TATACCGCCAGCTGGCACACAGTCCAACAGCAACATATCTTCTTCTCCCCAGTGAGCA		
mouse AAT	(164)	TATACCGGGAGCTGGTCCATCAGTCCAACATTTCCAACATCTTCTTCTCCCCAGTGAGCA		
rabbit AAT	(223)	TGTACCGGGAGCTGGCCCGGAGTCCAACACCACCAATATCTTCTTCTCCCGGTGAGCA		
rat AAT	(157)	TATACCGGGAGCTGGTCCATCAATCCAATACATCCAACATCTTCTTCTCCGCTATGAGCA		
sheep AAT	(181)	TATACCACAAGTTGGCCCATCAGTCCAATACCAGCAACATCTTCTTCTCCCGATGAGCA		
Consensus	(241)	TATACCGGGAGCTGGTCCATCAGTCCAATACCACCAACATCTTCTTCTCCCCAGTGAGCA		
		301		360
hamster AAT	(254)	TTGCCACAGCCTTTGCTATGCTCTCTCTGGGCAGCAAGGGTGTCACTCACAGCCAGATTC		
human AAT	(253)	TGGCTACAGCCTTTGCAATGCTCTCCCTGGGGACCAAGGCTGACACTCACGATGAAATCC		
mouse AAT	(224)	TTGCCACAGCCTTTGCTATGCTCTCCCTAGGGAGCAAGGGTGACACTCACACGAGATCC		
rabbit AAT	(283)	TGGCCTGGCCTTTGCCATGCTCTCCCTGGGGGCAAGGGGGACAGCCACACCCAGGTCC		
rat AAT	(217)	TCACCACAGCCTTCGCCATGCTCTCCCTGGGGAGCAAGGGTGACACTCGCAACAGATTC		
sheep AAT	(241)	TGGCTTCAGCCTTTGCGATGCTTTCCCTGGGAGCCAAGGGCAACACTCACACTGAGATCC		
Consensus	(301)	TGCCACAGCCTTTGC ATGCTCTCCCTGGGGACCAAGGGTGACACTCACAC CAGATCC		
		361		420
hamster AAT	(314)	TAGAGGGCCTGGGCTTCAACCTCACAGAAATAGCCGAGGCTGAGGTCCACAAAGGCTTCC		
human AAT	(313)	TGGAGGGCCTGAATTTCAACCTCACGGAGATTCCGGAGGCTCAGATCCATGAAGGCTTCC		
mouse AAT	(284)	TAGAGGGCCTGCAGTTCAACCTCACACAAACATCGGAGGCTGACATCCACAAATCCTTCC		
rabbit AAT	(343)	TGGAGGGCCTGAAGTTCAACCTCACAGAGACGCGCGAGGCCCAGATCCAGGACGGCTTCC		
rat AAT	(277)	TAGAGGGCCTGGAGTTCAACCTCACACAGATACCTGAGGCTGACATCCACAAAGCCTTCC		
sheep AAT	(301)	TGGAGGGCCTGGCTTTCAACCTCACTGAGCTAGCAGAGGCTGAGATCCACAAAGGCTTCC		
Consensus	(361)	TGGAGGGCCTGGAGTTCAACCTCACAGAGATAGC GAGGCTGAGATCCACAAAGGCTTCC		

		421		480
hamster AAT	(374)	ATAACCTCCTCCAGACCTTCAACAGGCCAGACAATGAGCTTCAGCTGACCAGAGGCAATG		
human AAT	(373)	AGGAACCTCCTCCGTACCCTAAACAGCCAGACAGCCAGCTCCAGCTGACCACCGGCAATG		
mouse AAT	(344)	AACACCTCCTCCAAACCCCTCAACAGACCAGACAGTGAAGCTGCAGTTGAGGACAGGCAATG		
rabbit AAT	(403)	GGCACCCTCCTGCCACACCGTCAACAGGGCCGACAGCGAGCTGCAGCTGGCCGCGGGCAACG		
rat AAT	(337)	ATCACCTCCTCCAAACTCTCAACAGGGCCAGACAGTGAAGCTGCAGCTGAACACAGGCAATG		
sheep AAT	(361)	AGCATCTTCTCCACACCCTCAACAGCCAAACACCAGCTGCAACTGACCACCGGCAATG		
Consensus	(421)	AGCACCTCCTCCA ACCCTCAACAGGCCAGACAGTGAAGCTGCAGCTGACCACCGGCAATG		
		481		540
hamster AAT	(434)	GCCTGTTTCATCCACAACAATCTAAAGCTGGTGGATAAGTTCTTGGAGAGGTCAAGAAAGC		
human AAT	(433)	GCCTGTTTCCTCAGCGAGGGCCTGAAGCTAGTGGATAAGTTTCTGGAGCATGTTAAAAAGT		
mouse AAT	(404)	GCCTCTTTTGTCAACAATGACCTGAAGCTGGTGGAGAAGTTTCTGGAAGAGGCCAAGAAGC		
rabbit AAT	(463)	CCCTGGTCTGTCAGCGAGAACCTGAAGCTGCAGCACAAGTTTCTAGAAGACGCCAAGAACC		
rat AAT	(397)	GCCTCTTTTGTCAACAAGAATCTGAAGCTGGTGGAGAAGTTTCTGGAAGAGGTCAAGAACA		
sheep AAT	(421)	CTCTGTTTCATCAATGAGAGTGCAAAGCTAGTTGATACGTTTTTGGACCATGTCAAGAATC		
Consensus	(481)	GCCTGTTTCGTCAACGAGAATCTGAAGCTGGTGGATAAGTTTCTGGAAGAGGTCAAGAACC		
		541		600
hamster AAT	(494)	ATTACCACTCGGAAGCCTTCTCTGTCAACTTCACAGACTCAGAAAGAGGCCAAGAAAGTGA		
human AAT	(493)	TGTACCACTCAGAAGCCTTCACTGTCAACTTCGGGCATCACCAAGAGGCCAAGAAACAGA		
mouse AAT	(464)	ATTATCAGGCAGAAGTCTTCTGTCAACTTTCAGAGTCAAGAGGAGGCCAAGAAAGTGA		
rabbit AAT	(523)	TGTACCACTCGGAAGCCTTCTCTGTCAACTTTCAGGAGCCCGAGCAGGCCAAGCAAGAAG		
rat AAT	(457)	ATTACCACTCAGAAGCCTTCTCTGTCAACTTTCAGGAGTCAAGAGGGTAAAGAAAGTAA		
sheep AAT	(481)	TGCATCACTCGAAGCCTTCTCATCAACTTCAGGGATGCTGAGGAGGCCAAGAAAGAGA		
Consensus	(541)	TTTACCACTCAGAAGCCTTCTCTGTCAACTTCGGGACTCAGAGGAGGCCAAGAAAGTGA		
		601		660
hamster AAT	(554)	TCAACGGTTTCTGTGAGAAGGGAAGCCCAAGGAAAGATAGTTGATTTAGTGAAGGACCTTG		
human AAT	(553)	TCAACGATTACGTGGAGAAGGGTACTCAAGGGAATAATGTGGATTGGTCAAGGAGCTTG		
mouse AAT	(524)	TTAATGATTTCTGTGAGAAGGGAACCCCAAGGAAAGATAGTTGAGGCAGTGAAGAACTGG		
rabbit AAT	(583)	TCAACAGCCACGTGGAGAAGGGAGCCCGAGGGAAGATCGTGGACTTGGTGCAAGAGCTGG		
rat AAT	(517)	TTAATGATTATCTAGAGAAGGGAACCCCAAGGAAAGATAGTTGATTTGATGAACAGCTGG		
sheep AAT	(541)	TCAATGATTATGTAGAGAAGGGAAGCCATGGAAAATTTGTGATTGGTAAAGGATCTTG		
Consensus	(601)	TCAATGATTATGTGGAGAAGGGAACCCCAAGGAAAGATAGTTGATTTGGTGAAGGAGCTTG		
		661		720
hamster AAT	(614)	ACAAAGACACAGTTCTTGCCCTGGTGAATTACATTTTCTTTAAAGGCAAGTGGAGAAGC		
human AAT	(613)	ACAGAGACACAGTTTTTGCTCTGGTGAATTACATCTTCTTTAAAGGCAATGGGAGAGAC		
mouse AAT	(584)	ACCAAGACACAGTTTTTGGCCCTGGGCAATTACATTTCTTTTAAAGGCAATGGAGAAGC		
rabbit AAT	(643)	ACGCCCGCACACTGCTTGCCCTGGTGAACCTACGTTTCTTCAAGGGAAGTGGGAGAAGC		
rat AAT	(577)	ACGAAGACACGTTTTTTGGCCCTGGTGAATTACATTTTCTTTAAAGGCAAGTGGAGAAGC		
sheep AAT	(601)	ACCAAGACACAGTTTTTTGCTCTGGTCAATTACATATCTTTTAAAGGCAATGGGAGAAGC		
Consensus	(661)	AC AAGACACAGTTTTTTGCCCTGGTGAATTACATTTTCTTTAAAGGCAAGTGGGAGAAGC		
		721		780
hamster AAT	(674)	CCTTCGATGCAGACAACACTGAGGAAGCTGACTTCCACGTGGACAAGAACCACCAGGTGA		
human AAT	(673)	CTTTTGAAGTCAAGGACACCGAGGACGAGGACTTCCACGTGGACAGGTGACCACCGTGA		
mouse AAT	(644)	CATTCGATCTGAGAACACTGAAGAAGCTGAGTTCCACGTGGACAAGTCCACCACCGTGA		
rabbit AAT	(703)	CCTTCGAGCCCGAGAACAACCAAGGAAGAGGACTTCCACGTGGACCCACGACCACCGTGC		
rat AAT	(637)	CATTCAATCCTGAGCACACTAGGGATGCTGACTTTCACGTAGACAAGTCCACCACAGTGA		
sheep AAT	(661)	CCTTCGAGGTGAGCACACACCGGAGAGGGACTTCCACGTGAATGAGCAAACCACCTGA		
Consensus	(721)	CCTTCGATGCCGAGAACACTGAGGAAGCTGACTTCCACGTGGACAAG CCACCACCGTGA		
		781		840
hamster AAT	(734)	AGGTGCCCATGATGACCGGCTGGGCATGTTTGAGCTGCACTATGTTAGCACTCTGTCCA		
human AAT	(733)	AGGTCCCTATGATGAAGCGTTTACGCATGTTTAAACATCCAGCATGTAAGAAGCTGTCCA		
mouse AAT	(704)	AGGTGCCCATGATGACCCCTCTCGGGCATGCTTGATGTGACACATTGCAGCACACTCTCCA		
rabbit AAT	(763)	GGGTGCCCATGATGTCGGGCTGGGCAATGTATGTGATGTTCCACTGTAGCAGGCTGCCCA		
rat AAT	(697)	AGGTGCCCATGATGAACCGCTGGGCATGTTTGACATGCACTATTGCAGCACACTGTCCA		
sheep AAT	(721)	AGGTGCCCATGATGAACCGCTGGGCATGTTTGACCTCCACTACTGTGACAAGCTGCCCA		
Consensus	(781)	AGGTGCCCATGATGAACCGCTGGGCATGTTTGACATGCACTATTGTAGCACGCTGTCCA		

		841	900
hamster AAT	(794)	CCTGGGTGCTGCTGATGGATTAGCTGGGCAACGGCACTGCCATCTTCATCCTAGCTGATG	
human AAT	(793)	CCTGGGTACTGCTAATGAAATACCTGGGCAATGCCACCGCCATCTTCTTCCTACCTGATG	
mouse AAT	(764)	CCTGGGTGCTGCTGATGGATTACGCGGGCAACGGCACTGCTGTCTTCTCTGCCCCAAG	
rabbit AAT	(823)	GCACGGTCGTGCTGATGGACTACAAGGGCAACGGCAACGGCCCTCTTCTCTGCCCCGACG	
rat AAT	(757)	CCTGGGTGCTGATGATGGATTACCTGGGCAACGGCACTGCCATCTTCTCTGCCCCGATG	
sheep AAT	(781)	CCTGGGTGCTGCTGCTGGACTAGCTGGGCAACGTCAGCGCCTGCTTCATCCTGCCCCACC	
Consensus	(841)	CCTGGGTGCTGCTGATGGATTACCTGGGCAACGGCACTGCCATCTTCTCTGCCCCGATG	
		901	960
hamster AAT	(854)	ATGGCAAGATGCAGCATCTGGAGCAAACCTCTCAACAAGGAATCATTTGGCAAGTTCCTGA	
human AAT	(853)	AGGGGAACCTACAGCATCTGGAAAATGAACTCAGCCACGATATCATCACCAGTTCCTGG	
mouse AAT	(824)	ATGGGAAGATGCAGCATCTGGAGCAAACCTCTCAACAAGGAGCTCATCTCTAAGATCCTGC	
rabbit AAT	(883)	AGGGGAAGCTGCAGCACCTGGAGCACAGGCTCAGCAGGAGCTCATCGGCAAGTTCCTGG	
rat AAT	(817)	ATGGCAAGATGCAGCATCTGGAGCAAACCTCTCACCAGGATCTCATTTCCCGTTCCTGC	
sheep AAT	(841)	TCGGGAACCTGCAGCAGCTGGAGACAAGCTCAACAACGAACCTCTCGGCAAGTTCCTGG	
Consensus	(901)	ATGGGAAGCTGCAGCATCTGGAGCAAACCTCTCACCAGGA CTCATCGCCAAGTTCCTGG	
		961	1020
hamster AAT	(914)	AGGACAGACACACAAGGTCAAGCAATGTACACTTCCCCAAACTGTCCATCTCTGGAACCT	
human AAT	(913)	AAAAATGAAGACAGAAGGTCTGCCAGCTTACATTTACCCAAACTGTCCATTACTGGAACCT	
mouse AAT	(884)	TAAACAGGGGCAAGAAGGTAGTCCAGATCCATATCCCCAGACTGTCCATCTCTGGAGAAT	
rabbit AAT	(943)	CAAAAAGCAGCTTCAGGTCTGTCAGGTCGGCTTTTCCCCAAACTCTCCATTCTGGAACCT	
rat AAT	(877)	TAAACAGGCAACAAGGTCAAGCTTCTGTACTTCCCCAAACTGTCCATCTCTGGAACCT	
sheep AAT	(901)	AAAAAAGATATGCAAGTCTCTGCAATTTACATTTGCCCCAAACTGTCCATTTCTGAAACGT	
Consensus	(961)	AAAACAGACACACAAGGTCTGCCAAT TCCATTTCCCCAAACTGTCCATTTCTGGAACCT	
		1021	1080
hamster AAT	(974)	ATAACTTGAAGACAGCCCTGGATGCGCTGGGCATCAGCCAGGTCTTCAGCAATGGGGCTG	
human AAT	(973)	ATGATCTGAAGAGCGTCTCTGGTCAACTGGGCATCACTAAGGTCTTCAGCAATGGGGCTG	
mouse AAT	(944)	ATAACTTGAAGACACTCATGAGTCCACTGGGCATCAGCCGGATCTTCAACAATGGGGCTG	
rabbit AAT	(1003)	ACGACCTGAAACCCCTCTGGGCAAACTGGGCATCAGCCAGGTCTTCAGGACAAACGGGG	
rat AAT	(937)	ATAACTTGAAGACACTCTGAGCTCACTGGGCATCAGCCGGGTCTTCAACAATGATGCTG	
sheep AAT	(961)	ACGATCTGAAAGTGTCTCTGGGTGAAGTGGGCATCAAGAGGTCTTCAGCAACGGGGCTG	
Consensus	(1021)	ATGACTTGAAGACAGTCTCTGGTCCACTGGGCATCAGCCGGGTCTTCAGCAATGGGGCTG	
		1081	1140
hamster AAT	(1034)	ACCTTTCTGGGATCACAGAGGA---TGTTCCCTGAAGCTTGGAAGGCTGTGCATAAGG	
human AAT	(1033)	ACCTCTCCGGGCTCACAGAGGA---GGCACCCCTGAAGCTCTCCAAGGCCGTGCATAAGG	
mouse AAT	(1004)	ACCTCTCCGGAAATCACAGAGGAGAATGCTCCCTGAAGCTCAGCAAGGCTGTGCATAAGG	
rabbit AAT	(1063)	ACCTCTCGGGGATCACGGAGCA---GGAAGCTCTGAAGGTGTCACAGGCCCTGCACAAGG	
rat AAT	(997)	ATCTCTCTGGAATCACAGAGGA---TGCCCCCTGAAGCTTAGCCAGGCTGTGCATAAGG	
sheep AAT	(1021)	ACCTCTCAGGGATCACCGAGGA---ACAGCCTCTGATGCTGTCGAAGGCCCTCCAAGG	
Consensus	(1081)	ACCTCTC GGGATCACAGAGGA TGC CCCCTGAAGCT TGCAAGGCTGTGCATAAGG	
		1141	1200
hamster AAT	(1091)	CTGTGCTGACCATCGATGAGAGAGGGACGGAAGCTGCAGGGGCCACATTTATGGAATCA	
human AAT	(1090)	CTGTGCTGACCATCGACGAGAGAGGGGACTGAAGCTGCTGGGGCCATGTTTTAGAGGCCA	
mouse AAT	(1064)	CTGTGCTGACCATCGATGAGACAGGAACAGAACTGCAGCAGCTACAGTCTTTGAAGCCG	
rabbit AAT	(1120)	TGGTGCTGACCATCGACGAGAGAGGGACGGAAGCTGCCGGGGGCCACATTTGTGGAATACG	
rat AAT	(1054)	CTGTGCTGAGCTTAGATGAGAGGGGAACAGAGGCTGCAGGAGGCCACTGTGGTGGAGGCCG	
sheep AAT	(1078)	CTGCCCTGACCATTGATGAGAAAGGGACAGAAAGCTCTCTGGGGCCACGTTTCTGGAAGCTA	
Consensus	(1141)	CTGTGCTGACCATCGATGAGAGAGGGACAGAAAGCTGCAGGGGCCACATTT TGGAAGCCG	
		1201	1260
hamster AAT	(1151)	TCCCCATGTCTGTGCCCCCTGAGGTGAACCTTAACAGCCCTTTCATTGCCATAATATATG	
human AAT	(1150)	TACCAATGTCTATCCCCCAGAGGCTCAAGTTCACAAACCCCTTCTCTCTTAATGATTC	
mouse AAT	(1124)	TTCCATATGCTATGCCCCCTATCTGCGCTTCGACCAACCCCTTCTCTTTTATAATATTG	
rabbit AAT	(1180)	TACTCTATCTATGCCCCAAAGGCTCACCTTTGACAGGCCCTTCTCTTTGTTCATCTACA	
rat AAT	(1114)	TCCCCATGTCTGTGCCCCCTCAAGTGAAGTTCGACCACCCCTTTCATTTTCATGATAGTTG	
sheep AAT	(1138)	TCCCCATGTCTCTTCCCCCAGAGCTCGAGTTCAACAGACCCCTTCTCTGTCATCCCTACG	
Consensus	(1201)	TCCCCATGTCTATGCCCCCTGAGGTGAAGTTCGACAGCCCTTTCCTTTTCATAATATTTG	

1261 1320

hamster AAT (1211) ATAGACAGACAGCAAAGAGCCCGCTCTTTGTGGGAAAAGTGGTGGATCCCAGACGTTAAT

human AAT (1210) AACAAAATA---CCAAGTCTCCGCTCTTCATGGGAAAAGTGGTGAATCCCACCCAAAAAT

mouse AAT (1184) AAGAACAACA---CTCAGAGCCGATCTTTGTGGGAAAAGTGGTAGATCCCACACATAAAT

rabbit AAT (1240) GTCATGAGG---TCAAGAGTCCCGCTCTTCGTGGGAAAAGTGGTGGATCCCACCCACACT

rat AAT (1174) AAT--CAGA-AACTCAGAGCCCGCTCTTTGTGGGAAAAGTGAATAGATCCCACACGTTAAT

sheep AAT (1198) ACAGAAACA---CCAAGTCTCCGCTCTTCGTGGGAAAAGTGGTGAATCCCACCCAGCCT

Consensus (1261) AA AACAGA CCAAGAGTCCCGCTCTTTGTGGGAAAAGTGGTGGATCCCACCCAT AAT

1321 1380

hamster AAT (1271) CACAAT-TCTCAGTC-AGATGTCTATCTTTTCTGGATTGGGTCCCGT-----CCCCAGTGA

human AAT (1267) AACTGCCTCTCGCTCCTCAACCGCTCCCGCTCCATCCTGGCCCCCT-----CCTGGATGA

mouse AAT (1241) GA-----

rabbit AAT (1297) AAGACCCACCGCAGCACATTAAGGCTCTGAGCTGGCTCCAGGGGGCAGCCCCCTC---

rat AAT (1231) CACTGT-CCTCAG---AAGTCACATCCCTTCTGGATCGGGTCCCGT-----TCCTAATAA

sheep AAT (1255) AAGTGCCTCTCGGGGTTCAAGTTTCCCGTCCAGGCCAGGTCCCGTCTTCTCCTCATGG

Consensus (1321) AACTGCCTCTCGG ACATC CATCCCTC G CC GGTCCCT CCCC ATGA

1381 1435

hamster AAT (1324) CATTAAACACAGGCTGTCTTGGCCCCACCCATGCCTGAGTGCTTCTGCAATGCTC

human AAT (1323) CATTAAAGAAGGGTTGAGCTGGA-----

mouse AAT (1243) -----

rabbit AAT (1354) -----

rat AAT (1282) TATTAAACTCAGGCTGGCTGGCCT-----

sheep AAT (1315) CATTAAAGGATAACTGACCT-----

Consensus (1381) CATTAA GGCTG CTGG

mouse alpha1-antitrypsin polypeptide sequence

1 MTPSISWGLL LLAGLCCLVP SFLAEDVQET DTSQKDQSPA SHEIATNLGD FAISLYRELV

61 HQSNTSNIFF SPVSIATAFA MLSLGSKGD HTQILEGLQF NLTQTSEADI HKSFOHLLQT

121 LNRPDSELQL STGNGLFVN DLKLVEKFL EAKNHYQAEV FSVNFAESEE AKKVINDFVE

181 KGTQGKIVEA VKELDQDTV ALGNYILFKG KWKKPFDPEN TEEAEFHVDK STTVKVPMMT

241 LSGMLDVHHC STLSSWVLLM DYAGNASAVF LLPEDGKMQH LEQTLNKELI SKILLNRRRR

301 LVQIHIPRLS ISGEYNLKIT MSPLGITRIF NNGADLSGIT EENAPLKLK AVHKAVLTID

361 ETGTEAAAAT VFEAVPMSMP PILRFDHPFL FIIFEEHTQS PIFVGKVVDP THK*

Alignment of homologous protein sequences from other species

1 60

mouse AAT (1) MTPSISWGLLLLAGLCCLVP SFLAEDVQ-----ETDTSQKDQS-PASHEIATNLGDFAIS

rat AAT (1) -APSHGGSCFWQPCVAVWPASWIRMPKRP-IPPSRTRVQPTVRFLQTWQTLPSAYTGSWS

human AAT (1) -MPSVSWGILLAGLCCLVP SFLAEDPQGDAAQKTDTSHHDDHPTFNKITPNLAEFAFS

sheep AAT (1) MALSIIRGLLLAALCCLAPTSIAGVLQGHAVQETDDTAHQEAA--CHKIAPNLANFAFS

hamster AAT (1) MKPSISWGLLLLAGLCCLVP SFLAEDAQ-----ETDASKODQEHQACCKIAPNLADF SFN

rabbit AAT (1) MPPSVSRALLLLAGLGCLTPGFLAEDAQ-----ETAVSSHEQDRPACHRIAPSLVEFALS

Consensus (1) M PSIS GLLLLAGLCCLVP SFLAED Q ETD S HDQD PACHKIAPNLADFAFS

61 120

mouse AAT (55) LYRELVHQSNTSNIFFSPVSIATAFAMLSLGSKGDHTQILEGLQFNLNLTQTSEADIHKSF

rat AAT (59) INPIHPTSSSPL-ASPOQSPCSPWGARVTLANRF-RAWSSTSHRYLRILTSTRPSITSSKL

human AAT (60) LYRLAHQSNTSNIFFSPVSIATAFAMLSLGTAKADTHDEILEGLNFNLTEIPEAQIHEGF

sheep AAT (59) TYHKLAHQSNTSNIFFSPVSIATAFAMLSLGAAGNTHTEILEGLGFNLTEIAEAEIHKGF

hamster AAT (56) LYRELVHQSNTTNIFFSPVSIATAFAMLSLGTAKGVTHHTQILEGLGFNLTEIAEAEVHKGF

rabbit AAT (56) LYRELVARESNTTNIFFSPVSIATAFAMLSLGAAGDTHHTQILEGLGFNLTEIAEAEIHGDF

Consensus (61) LYRELAHQSNNTNIFFSPVSIATAFAMLSLGTAKGDHTQILEGL FNLTEIAEAEIHKGF

121 180

mouse AAT (115) QHLLQTLNRPDSELQLSTGNGLFVNNDLKLVEKFL EAKNHYQAEVFSVNFAESEEAKKV

rat AAT (117) STGQTVSCS-----TQAMASLSTRI-SWWRSEWKRSEBTITTKPQPSLSTLPTQKRLRK-

human AAT (120) QELLRTLNPQPSQLQLTTGNGLFISEGLKLVDKFL LEDVKKLYHSEAFIVNFGDHEEAKKQ

sheep AAT (119) QHLLHTLNQPNHQLQLTTGNGLFVNESAKLVDTFL LEDVKNLHHSKAFSINFRDAEEAKKK

hamster AAT (116) HNLLQTFNRPDSELQLSTGNGLFVNHNKLKLVDKFL LEDVKNDYHSEAFSVNFTDSEEAKKV

rabbit AAT (116) RHLHTVNRPDSELQLAAGNALVSENKLVQHKFL LEDAKNLYQSEAFVDFRDPEQAKTK

Consensus (121) QHLL TLNRPDSELQLTTGNGLFISE LKLVDKFL LEDVKNLYHSEAFSVNF DSEEAKK

181 240
mouse AAT (175) INDEVEKGTQGI~~V~~EAVKELDQDTVFALGNYILF~~K~~GKWK~~K~~PF~~D~~PENTEEAE~~F~~HVDK~~S~~TTV
rat AAT (168) ~~IM~~MIM-~~RR~~EPKE~~R~~-~~II~~I--NSWTK~~TR~~F~~TP~~W-ITFSLKASGRGHS~~I~~LSTLGMLT~~ET~~-TSPPQ-
human AAT (180) INDEVEKGTQGI~~V~~DLVKELD~~R~~DTVFALVNI~~IF~~KGKWE~~R~~PF~~E~~VKDTE~~DE~~D~~F~~HVDQVTTV
sheep AAT (179) INDEVEKGS~~H~~GKI~~V~~DLVK~~D~~LDQDTVFALVNI~~S~~F~~K~~GKWE~~K~~PF~~E~~VEHTTERD~~E~~HVNEQTTV
hamster AAT (176) INDEVEKGTQGI~~V~~DLVK~~D~~LD~~R~~DTVFALVNI~~IF~~KGKWK~~K~~PF~~D~~ADNTEEAD~~E~~HVDK~~T~~TTV
rabbit AAT (176) INSHVEKGT~~R~~GKI~~V~~DLVQELDART~~L~~LALVNI~~V~~F~~F~~KGKWE~~K~~PF~~E~~PENTKEED~~E~~HVDAT~~T~~TTV
Consensus (181) INDFVEKGTQGI~~V~~DLVKELDKDTVLALVNI~~IF~~KGKWE~~K~~PF~~E~~VENTEE DFHVD TTTV

241 300
mouse AAT (235) K~~V~~E---MM~~T~~LSGMLD~~V~~HH~~C~~STLSSWVLLMDYAGNASAV~~F~~ELP~~E~~DGK~~M~~OH~~L~~E~~Q~~TLNKELI
rat AAT (221) ~~R~~CP---TAWACLTCTIAAHCP~~A~~GC--W~~IT~~WATPLP-~~SS~~SCPM~~M~~ARCSIWSK~~IS~~PR~~IS~~FP~~GS~~
human AAT (240) K~~V~~E---MMKRLGMFN~~I~~QHCKKLSSWVLLMKYLG~~N~~ATA~~IF~~FLP~~D~~E~~G~~KLQH~~L~~E~~N~~ELTH~~D~~II
sheep AAT (239) K~~V~~E---MMNRLGMFD~~L~~HY~~C~~DKL~~A~~SWVLL~~LD~~Y~~V~~GNVTAC~~F~~LPDLGKLQ~~Q~~EDKLN~~N~~ELI
hamster AAT (236) K~~V~~E---MMSRLGMFD~~V~~HY~~V~~STLSSWVLLMDYLGNATA~~IF~~FLP~~D~~E~~G~~K~~M~~OH~~L~~E~~Q~~TLNK~~E~~II
rabbit AAT (236) K~~V~~E---MMSRLGM~~V~~VMFHCSTL~~A~~STV~~L~~MDYKGNATA~~IF~~FLP~~D~~E~~G~~KLQH~~L~~E~~H~~TLTTELI
Consensus (241) KVP MMSRLGMFDVHH~~C~~STLSSWVLLMDYLGNATA~~IF~~FLPDDGKLQH~~L~~E~~Q~~TLN ELI

301 360
mouse AAT (291) ~~S~~KILLNR~~RR~~RLV~~Q~~L~~H~~PR~~L~~SISGEYNLKT~~L~~MSPL~~G~~IT~~R~~IFNNGADLSGITEENAPL~~K~~LSK
rat AAT (276) C-TGK~~Q~~GQPFST~~S~~PNC~~P~~ST~~E~~PIT-RHS-AHWAS~~P~~CSST~~M~~MLIS~~L~~ESQ~~R~~MPP-----SL~~A~~R
human AAT (296) TKFLE~~N~~EDRRSAS~~I~~HL~~P~~KLS~~I~~SGTYDLK~~S~~VLGQL~~G~~IT~~K~~VFSNGADLSG~~V~~TEE-APL~~K~~LSK
sheep AAT (295) ~~A~~KFLE~~K~~KYASSAN~~H~~LP~~K~~LS~~I~~SETYDLKT~~V~~LGEL~~G~~IN~~R~~VFSNGADLSGITEE-QPL~~M~~VSK
hamster AAT (292) GKFLK~~D~~RHTRSAN~~V~~H~~F~~PKLSISGTYNLKTALDPL~~G~~ITQVFSNGADLSGITE~~D~~-VPLKLGK
rabbit AAT (292) ~~A~~KFLAKSSFRSV~~T~~V~~R~~FPKLSISGTYDLK~~P~~LGL~~G~~ITQVFSNADLSGITEQ-EALK~~V~~SQ
Consensus (301) AKFL NR RSASLHLPKLSISGTYDLKTLLG LGITRVFSNGADLSGITEE PLKLSK

361 420
mouse AAT (351) AVHKAVLTIDE~~T~~GTEAA~~A~~AATVFEAV~~P~~MS~~M~~PE~~P~~IL~~R~~FDHPFLFI~~I~~E~~E~~HTQS-PLFV~~G~~KVVD
rat AAT (328) LCIR~~L~~C-P-MRGEQRLQ~~E~~PL~~W~~WRPSPCLC~~PL~~K-SST~~T~~LSFS--LNQKL~~R~~APSL~~W~~EK--~~I~~P
human AAT (355) AVHKAVLTIDE~~K~~GTEAAGAM~~F~~EAI~~P~~MS~~T~~PE~~V~~KFN~~K~~PF~~V~~FL~~M~~IE~~Q~~NTKS-PLF~~M~~GKVVN
sheep AAT (354) A~~L~~HKAALTIDE~~K~~GTEAAGAT~~F~~EAI~~P~~MS~~L~~PP~~D~~VEFN~~R~~PFLC~~I~~LYDR~~N~~TKS-PLFV~~G~~KVVN
hamster AAT (351) AVHKAVLTIDE~~R~~GTEAAGAT~~F~~MEI~~I~~PMS~~V~~PE~~V~~NFN~~S~~PF~~L~~AI~~I~~YDR~~O~~TAKSPLFV~~G~~KVVD
rabbit AAT (351) A~~L~~HKVVL~~T~~IDE~~R~~GTEAAGAT~~F~~VEY~~V~~LYS~~M~~PE~~Q~~RVT~~F~~DR~~P~~FL~~F~~V~~I~~YSHEVKS-PLFV~~G~~KVVD
Consensus (361) AVHKAVLTIDEK~~G~~TEAAGAT~~F~~EAI~~P~~MS~~M~~PE~~V~~ FNR~~P~~FLFI~~I~~YD NTKS PLFV~~G~~KVVD

421
mouse AAT (410) PTHK-
rat AAT (381) HV---
human AAT (414) PTQK-
sheep AAT (413) PTQA-
hamster AAT (411) PTR--
rabbit AAT (410) PTQH-
Consensus (421) PTQ

Fig 3D

Alignment of homologous EMAP mRNA and protein sequences from other species			1	60
rabbit EMAP	(1)	-----	-----TTCGGCGTGTTCAG	
dog EMAP	(1)	-----	-----GCACGAGGTCTCTGATTGCTTTTCCAG	
human EMAP	(1)	-----	-----ATGTTGACCGAGCTGGAGAAAGCCTTGAACCTATCATCGACGTCTACCAAC	
rat EMAP	(1)	-----	-----ATGGCAAGTGAAGTGGAGAGGCCCTTGAGCAACGTCATTGAAGTCTACCAAC	
pig EMAP	(1)	ATGGCAAAA	AGCCACAGAGACTGAGCGTTGCATGAACTCTCTGATTGCTATTTTCCAA	
mouse EMAP	(1)	-----	-----ATGCCTACAGAGACTGAGAGATGCATGAGTCCCTGATTGCTTTTCCAA	
Consensus	(1)		ATG C AC GAG GAGA GCATGAA TCTCTGATTGCTGTTTTCCA	
			61	120
rabbit EMAP	(16)	AAGTACGCTGGAAAGGATGGGCACAGCGTCACCCCTCTGCAAGACCGAGTTCCTGTCTCTTT		
dog EMAP	(30)	AAGTTTGCTGGAAAGGAGGGTAAACAAGTGCAGACTCTCCAAGACAGAGTTCCTAGCCTTC		
human EMAP	(52)	AAGTACTCCCTGATAAAGGGGAATTTCCATGCCGTCTACAGGGATGACCTGAAGAATTTG		
rat EMAP	(52)	AATTTATCTGGTATAAAGGGGAATCACCATGCCCTCTACAGGGATGACTTCAGGAAATG		
pig EMAP	(61)	AAGCATGCTGGAAAGGACGGTAAGAACACGAAATCTCCAAGACCGAGTTCCTAATTTTC		
mouse EMAP	(52)	AAGTACAGCGGGAAGGATGGAAACAACACTCAACTCTCCAAACTGAATTCCTTTCTTTC		
Consensus	(61)	AAGTATGCTGGAAAGGA GGAACAAC TACCCTCTCCAAGACTGAGTTCCTGACCTTC		
			121	180
rabbit EMAP	(76)	ATGAACACAGAGCTGGCTGCCTTCACAAAGAACCAGAAGGACCCCGGCGTCTCTGACCGG		
dog EMAP	(90)	ATGAATACAGAACTGGCTGCCTTCACAAAGAACCAGAAGGACCCCTGGTCTCTCTGACCGG		
human EMAP	(112)	CTAGAGACCGAG-----TGCTCTCAGT-ATATCAGGAAA-AA-----GGTGG-AGACGTG		
rat EMAP	(112)	GTCACCTACTGAG-----TGGCTCAGT-TTGTGCAGAAAT-AA-----AAATAG-CGAAAGG		
pig EMAP	(121)	ATGAATACAGAGCTGGCTGCCTTCACACAGAACCCAGAAGACCCCTGGTGTCTCTGACCGG		
mouse EMAP	(112)	ATGAACACAGAGCTGGCTGCCTTCACAAAGAACCAGAAGGATCCTGGTGTCTCTGACCGG		
Consensus	(121)	ATGAATACAGAGCTGGCTGCCTTCACAAAGAACCAGAAGGACCCCTGGTGTCTCTGACCGG		
			181	240
rabbit EMAP	(136)	ATGATGAAGAAATTGGACCTCAACAGTGACGG-GCAGCTGGATTTCGCA-----		
dog EMAP	(150)	ATGATGAAGAACTGGACCTCAACTCTGATGG-GCAGCTGGATTTCGAAGAATTCTTAA		
human EMAP	(160)	TGGTTCAAAGAGTTGGATATCAACACTGATGGTGCAGTTA-ACCTCCAGGAGTTCTCAT		
rat EMAP	(160)	TTGTTCAAAGAAATTGGACCTCAATAGTGACAACGCCAATTA-ACCTCGAAGAGTTCTTGC		
pig EMAP	(181)	ATGATGAAGAAATTGGACCTCGACTCTGATGG-GCAGCTAGATTTCGAAGAATTCTTAA		
mouse EMAP	(172)	ATGATGAAGAACTGGACCTCAACTGTGACGG-GCAGCTAGATTTCGAAGAGTTCTCAA		
Consensus	(181)	ATGATGAAGAAATTGGACCTCAACTGTGATGG GCAGCTAGATTTCGAAGAGTTCTTAA		
			241	300
rabbit EMAP	(184)	-----	-----	
dog EMAP	(209)	TCTTATTGGTGGGATGGCCATAGCTTGCCATGACTCCTTTTCAAGGTCTCCGCAATTCCG		
human EMAP	(219)	TCTGGTGATAAAGATGGGGCTGGCAGCCACAAAAAAGCCATGAAGAAAGCCACAA		
rat EMAP	(219)	GTTGGTGATAAGGGTGGGCTGGCAGCTCATAAA-----GACAGCCACAA		
pig EMAP	(240)	TCTTATTGGCGGGCTGGCCATAGCTTGCCATGACTCCTTTATTAAGTCTACCCA		
mouse EMAP	(231)	CCTCATTTGGTGGCTTAGCTATAGCTGGCCATGATTCTTTCATCCAAACTCCGAGAGCG		
Consensus	(241)	TCT ATTGG GGC TGGCCATAGC TGCCATGA TC TT A A CTACCCA AA		
			301	360
rabbit EMAP	(184)	-----	-----	
dog EMAP	(269)	GAAGTAAATCGGAGGGGTTCCTGGGCCTGGCCTCCAGACCACCTCTTTCCTTCAAAACAG		
human EMAP	(276)	AGAGTAG-----	-----	
rat EMAP	(264)	GCAGTAA-----	-----	
pig EMAP	(294)	GAAGTAA-----	-----	
mouse EMAP	(291)	AATCTAA-----	-----	
Consensus	(301)	GAAGTAA		
			361	420
rabbit EMAP	(184)	-----	-----	
dog EMAP	(329)	CTTCCCAATCATCACATCCTTCTCACATCCTACACAGACCTGAGCCACAGTGTCACCA		
human EMAP	(283)	-----	-----	
rat EMAP	(271)	-----	-----	
pig EMAP	(301)	-----	-----	
mouse EMAP	(298)	-----	-----	
Consensus	(361)			

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                                421                                460
rabbit EMAP (184) -----
dog EMAP (389) CCCTGTGCAGGCCAGTCCTGCTGGTAGTGAATAAAGCAAT
human EMAP (283) -----
rat EMAP (271) -----
pig EMAP (301) -----
mouse EMAP (298) -----
Consensus (421) -----

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Mouse EMAP protein sequence

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1 MPTETERCIE SLIAVFQKYS GKDGNNNTQLS KTEFLSFMNT ELAAFTKNQK DPGVLDMMK
61 KLDLNC DGQL DFQEFNLNIG GLAIACHDSF IQTSQKRI*

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Alignment of homologous protein sequences from other species

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                                1                                60
dog EMAP (1) -----TRSLIAVFQKFAKEGNNCTLSKTEFLTFMNT ELAAFTKNQKDPGVLDLDR
mouse EMAP (1) ---MPTETERCTESLIAVFQKYS GKDGNNNTQLS KTEFLSFMNT ELAAFTKNQKDPGVLDLDR
rabbit EMAP (1) -----FAVFQKYAGKDGH SVTL SKTEFLSFMNT ELAAFTKNQKDPGVLDLDR
human EMAP (1) ---MLTELEKALNSITIDVYHKYSLIKGNFHAVYRDD LKKLETECPQYIRKK----GADV
rat EMAP (1) ---MATELEKALNSNVIEVYHNYSGIKGNHHALYRDDFRKMVTECPQFVQNK----NTES
pig EMAP (1) MAKRPETERCTESLIAVFQKHAGRDGNNNTKLSKTEFLIFMNT ELAAFTQKQKDPGVLDLDR
Consensus (1) M TE EK I SLIAVFQKYAGKDGN LSKTEFLSFMNT ELAAFTKNQKDPGVLDLDR

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                                61                                102
dog EMAP (50) MMKKLDLNSDGQLDFQEFNLNIGGLAIACHDSFTRSPHFRK-
mouse EMAP (58) MMKKLDLNC DGQLDFQEFNLNIGGLAIACHDSFIQTSQKRI-
rabbit EMAP (46) MMKKLDLNSDGQLDFQ-----
human EMAP (54) WFKELDINTDGAVNFEFLILVIKMGVA AHKKSHEESHKE--
rat EMAP (54) LFKELDVNSDNATNEEFLALVIRMGVA AHKDSHKE-----
pig EMAP (61) MMKKLDLSDGQLDFQEFNLNIGGLAIACHDSFIKSTQK---
Consensus (61) MMKKLDLNSDGQLDFQEFNLNIGGLAIACHDSF KSS K

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Fig. 4

